peripheral to be controlled; and

an interface for receiving at least one control signal forwarded to the stored-program control via the controller.

Remarks

Claims 1-14 are pending in the application. Applicants respectfully request reconsideration of the present application in view of the above amendments and the following explanations. The specification has been amended merely to clarify the meaning of an acronym used throughout the specification.

It is believed that this Amendment does not raise new issues that would require further consideration and/or search, and also does not raise the issue of new matter. It is also believed and respectfully submitted that this Amendment places the application in condition for allowance and/or in better form for appeal by materially reducing or simplifying the issues for appeal.

Claims 1, 2, 4-8 and 10-14 were rejected under 35 USC 102(e) as being anticipated by Poisner (U.S. Patent No. 6,012,154).

Independent claims 1, 8 and 13 have been amended to more clearly define the present invention. These claims now recite that the stored-program control continually executes an SPS program on a real-time operating system. For at least the reasons discussed below, it is respectfully submitted that Poisner does not disclose this feature of independent claims 1, 8 and 13.

In the Final Office Action, the Examiner equates the stored program control recited in the claims with an operating system-related software agent (item (212) in Figure 2 of Poisner) running on a processor. (See pg. 4 of the Final Office Action). It is clear from a reading of the Poisner reference (and from the explanatory comments in the specification of the present invention) that "operating-system related" refers to a operating system typically executed on a computer such as a version of Windows®, MacOS or Linux. It is noted in the specification of the present invention that these typical operating systems are not "real-time" operating systems. (Specification, page 4, lines 18-20).

Claims 1, 8 and 13, as amended, recite that the stored-program control runs an SPS program on a real-time operating system, which is not an "operating system-

related" software agent, but rather a program run on a programmable logic controller. In fact, Poisner clearly states that a malfunction of the operating system can disable the software agent from running (Poisner, col. 3, lines 9-12), an occurrence that the present invention explicity avoids by running the safety-control software (SPS program) on a separate operating system, so that operating system errors cannot simultaneously disable both regular computer function and the safety system for repairing the error.

For these reasons, the software agent described in Poisner does not disclose the stored program control recited in claims 1, 8 and 13.

Furthermore, the interrupt handler described in Poisner also does not disclose the stored program control recited in claims 1, 8 and 13 because the interrupt handler does not run continuously as does the SPS program of the stored program control. In Poisner, an interrupt signal (224) from a separate expansion bus bridge component activates the processor, which only then executes the interrupt handler. Poisner, col. 5, lines 5-9. This differs from the claimed subject matter in that the safety program, i.e., the interrupt handler, is not being continuously executed, but rather, is only initiated after other safety measures have proven ineffective.

Accordingly, it is submitted that Poisner does not anticipate claims 1, 8 and 13 for at least the reason that it does not disclose a stored-program control that continually executes an SPS program on a real-time operating system. Withdrawal of the rejection of independent claims 1, 8 and 13, and dependent claims 2, 4-7, 9-12 and 14, is therefore respectfully requested.

Claims 3 and 9 were rejected under 35 USC 103(a) as being unpatentable over Poisner. As demonstrated in the foregoing, Poisner fails to suggest all the features recited in independent claims 1 and 8. Since claims 3 and 9 depend on, and incorporate, the features of claims 1 and 8, claims 3 and 9 are allowable over Poisner for at least the reasons discussed in connection with claims 1 and 8. Accordingly, withdrawal of the rejection of claims 3 and 9 as being unpatentable over Poisner is respectfully requested.

In light of the above discussion, Applicants respectfully submit that the present application is in all aspects in allowable condition, and earnestly solicit favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned to discuss any matter concerning this application. The Office is authorized to charge any fees under 37 C.F.R. 1.16 or 1.17 related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

Dated: December 16, 2002

By: for Richard L. Mayer (by [illegible] R. No. 36,197)

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the specification:

The first full paragraph on page 4 of the specification has been amended as follows:

--Figure 2 again shows the above-described components plug-in card 30, control signal 17, output signal 27, bus system 20 and peripheral 32 connected to the bus system. Plug-in card 30 is now inserted in the slot of a conventional computer 50 and connected to a display window 45 via the computer system 12 running under an operating system 43, to an SPS (a programmable logic controller) program 49, which may run under a real time operating system 47, a processor 51 and a main memory 53. A programming environment 41, not necessarily integrated in computer 50, also runs under operating system 43.--.

In the claims:

Kindly amend the claims as follows:

1. (Twice Amended) A safety device for a stored-program control, comprising:

a controller for exchanging data with the stored-program control, the stored-program control [being external to the safety device] continually executing an SPS program on a real-time operating system, the controller[, and for] exchanging data, via a bus system, with a peripheral to be controlled; and

a memory for storing safety-relevant data of the stored-program control, the safety-relevant data being accessible by the controller.

8. (Twice Amended) A safety device for a stored-program control, comprising:

a controller for exchanging data with the stored-program control, the stored-program control [being external to the safety device] continually executing an SPS program on a real-time operating system, the controller[, and for] exchanging

data, via a bus system, with a peripheral to be controlled; and

a monitor for monitoring a wake-up signal generated by the stored-program control and transmitted to the monitor by the controller.

13. (Twice Amended) A safety device for a stored-program control, comprising:

a controller for exchanging data with the stored-program control, the stored-program control [being external to the safety device] continually executing an SPS program on a real-time operating system, the controller[, and for] exchanging data, via a bus system, with a peripheral to be controlled; and

an interface for receiving at least one control signal forwarded to the stored-program control via the controller.